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In 81
99

FOREST CONTROL

by

CONTINUOUS INVENTORY

"Today I have grown taller from walking
with the trees."

...Karle Wilson

Milwaukee, Wis. June, 1962 No. 99

"It is a mortifying circumstance, which greatly perplexes many a philosopher, that nature oft refuses to second his efforts; so that after having invented one of the most ingenious and natural theories imaginable, she will have the perverseness to act directly in the teeth of it. This is a manifest and unmerited grievance since it throws the censure of the vulgar and unlearned entirely upon the philosopher; whereas the fault is to be ascribed to dame Nature, who, with the proverbial fickleness of her sex, is continually indulging in coquetries and caprices; and who seems to take pleasure in violating all philosophic rules, and jilting the most learned and indefatigable of her adorers."

A History of New York
The Sketch Book

Washington Irving

FORESTRY SCHOOL LIBRARY

COPY NO. _____



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June, 1962

C.F.I. GUIDES A MANAGEMENT PLAN

Many elaborate plans for forest management have been devised by foresters, some of whom have been laid to rest under the whispering pines never really knowing whether their plans were truly successful.

Comes now Continuous Forest Inventory, and in a relatively short period of time the success of a forester's labors can be measured. The forester is now supplied with a solid array of facts which reveal what progress is actually being made in his woods.

Improvement in the growth picture can be readily tabulated. Overcutting or undercutting and changes in size class distribution become apparent. The extent to which spruce budworm is chewing up the balsam stands is measured and the proportions of disease problems tabulated.

The forest manager of large areas has now, for the first time, accurate periodic comparable records which he may analyze and use as the basis for forest management plans with which to meet the wood requirements of a rapidly changing economy.

After three measurements of the Minnesota & Ontario Paper Company's Continuous Forest Inventory plots covering two consecutive periods of three and five years each, we find that our growth picture is improving but natural mortality is still much too high. In spite of a stepped-up cutting budget, there has been little improvement in size class distribution. Tabulations on cutting reveal that we have been cutting in the right stands but not fast enough. As the period of management lengthens, it seems evident that the real growth potential of a managed pulpwood forest has been underrated and our sights must be raised. Fortunately we are no longer groping for results in semi-darkness but are striving to reach a goal guided by facts. The incentive of measurable accomplishments spurs us on.

J. W. HUBBARD
Minnesota & Ontario Paper Company
Big Falls, Minnesota

MINNESOTA AND ONTARIO PAPER COMPANY

833 ONE-SEVENTH ACRE PLOTS ON 290,000 ACRES

SIZE OF PROJECT

REMEASUREMENT PROBLEMS & THEIR SOLUTION

Total trees - 1961	19,200
Total trees - 1956	14,052
Total trees - 1953	13,365
Total plots - 1961	833
Total plots - 1956	749
Total plots - 1953	749
New plots - 1961	92
Lost plots - 1961	8
Acres per plot - 1961	348
Trees per plot - 1961	23
Number of men - 1961	14
Number of crews - 1961	5
Experienced men - 1961	11
Not experienced - 1961	3
Overall working days - 1961	64
Plots taken per day - 1961	3.1
Yrs. in growth period #1-1961	3
Yrs. in growth period #2-1961	5
Plots at each station -1961	2

Mislocated 4 plots. Original corners not found. True corners and new plots established.

Missed 27 trees. Original dimensions assumed. One plot not cut over on edge of cutting area.

About 100 error cards; mostly DBH and species errors. All corrected and recomputed by hand.

All plots found. Road accessibility improving.

Plot stakes and bearing trees hard to find in heavy slash of clear cut areas.

Mark sensing successful in woods but weak in the machines due to poor brushes.

Old paint numbers fair to good. Changed to Nelson blue in 1961. Very distinct but lasting qualities not known.

Usable lengths not taken on original trees. To be taken on all trees next measurement. Poles not used in this tall timber. Haga preferred.

Some difficulty with kind of mortality and distinction between missed and ingrowth trees.

Time spent on each plot averaged 46 minutes for remeasurement and 55 for establishment.

GENERAL COMMENTS AND USE OF CFI RESULTS

SECOND REMEASUREMENT

Mando has made 2 remeasurements of their original 749 CFI plots over an 8-year period. In addition to these plots, the company has 558 samples within a small research forest. It is the company's opinion that these plot systems are providing a most economic and continuous measure of the condition of the forest. They are an efficient and continuous guide to its management. CFI records are used by the company to prepare management plans for major breakdowns of the forest and to develop broad operating guides. Special growth tabulations are provided for use in the various units. Average annual growth and mortality records compiled from CFI plots seem to show significant trends in two separate measurement periods. While it will take a third growth record to justify these trends, present results are at least indicative. It appears that the forest is being rejuvenated, and that its natural losses have been reduced, and that a larger net growth is resulting.

GROWTH IN CORDS PER ACRE PER YEAR

Item	558 One-Tenth Acre Research Plots		749 One-Seventh Acre CFI Plots	
	1949-53	1954-58	1953-56	1957-61
Survivor growth	.380	.376	.299	.322
Ingrowth	.092	.107	.171	.219
Gross increment	.472	.483	.470	.541
Natural mortality	.220	.151	.223	.171
Net growth	.252	.332	.247	.370

CFI WORK IN REGION NINE
SUMMER FIELD SCHEDULE FOR 1962

WOODS WORK FOR LATE JUNE AND JULY

Cal Stott

Assist with plot establishment
U.S. Steel, Duluth, Minnesota.
Assist with plot remeasurement
Celotex Corporation, L'Anse
Michigan.
Kimberly-Clark Corporation of
Neenah, Wisconsin.
Assist in planning data pro-
cessing for the summer work.

MACHINE WORK FOR JUNE AND JULY

Dick Smith and Jim Hool

Data processing and analysis
Ford Forestry Foundation. Growth
interval of 22 years. Michigan.
Morton Arboretum. Growth interval
of 9 years. Illinois.
Stones woods. Annual records for
18 years. Wisconsin.
Celotex, special computer plans.
Partial computation, Copper Range.

WOODS WORK FOR AUGUST

Cal Stott

Assist with plot remeasurement
Nekoosa Edwards Paper Company,
Rhinelander Paper Company, Wis.
Marathon Corporation, Michigan

MACHINE WORK FOR AUGUST

Dick Smith and Jim Hool

Continue data processing. Data
processing schools for Smith.
Current mail & prospective cases:
Prepare newsletter material.

WOODS WORK FOR SEPTEMBER

Cal Stott - Dick Smith - Jim Hool

Special woods studies and plot work in cooperation with the school of
forestry, Purdue University. Supervision of several CFI cases in the
northern Lake States. Close out the season's data processing. Remnants
to be finished by Smith, who will also take advanced computer courses.

WOODS WORK FOR OCTOBER

Cal Stott

Assist with plot remeasurement
Pioneer Forest, Missouri.
Indiana State Forests.
SAF meeting, Atlanta, Ga. Inter-
regional cooperation. Region 8.
Seasonal newsletters, and pre-
planning 1963 machine work and
new CFI cases.

WOODS AND MACHINE WORK FOR OCTOBER

Dick Smith

Assist with plot establishment
Illinois State Forest case.
Continue data processing train-
ing. Attend advanced schools and
analysis of CFI results.
Newsletter preparation.
Assist with winter work planning
of new CFI cases for 1963.

SEASONAL CONTACTS AND DEMONSTRATIONS WITH PROSPECTIVE USERS OF CFI
AS REQUESTED

Cal Stott and Dick Smith

Trees for Tomorrow Incorporated, Wisconsin
Dairyman's Country Club, Wisconsin
Consumers Power Company, Michigan
Connor Land and Lumber Company, Michigan and Wisconsin
Calumet and Hecla, Michigan and Wisconsin
Alton Box Company, Illinois
Ohio Agricultural Experiment Station, Ohio
Menominee Enterprises, Menominee County, Wisconsin